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Oscillations of aerosols in the tubes near to resonances

Gubaidullin D., Zaripov R., Tkachenko L.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Published under licence by IOP Publishing Ltd. Experimental investigations longitudinal oscillations of a small-dispersed aerosol were carried out for tubes with various geometry on the end in a shock-free modes near to natural resonances. Di-ethyl-hexyl-sebacate was used as the working fluid to generate aerosol. Number concentration of drops for all experiments decreases with time scale and with growth of the excitation frequency. In the closed tube this process includes the coagulation and deposition of aerosol droplets on the tube walls. In the open tube except the coagulation and deposited of droplets on the walls of tube processes as unsteady discharge of aerosol from the open end of the tube. The time dependence of the numerical concentration of aerosol droplets is determined, and the effect of frequency and amplitude of oscillation on the process of coagulation and deposition of droplets is studied.

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